

CLAIMS

What is claimed is:

1. A method for supporting wireless communications, the method comprising the steps of:
 - 5 allocating a first channel to support message transmissions from a base station to multiple field units;
 - allocating a second channel to support message transmissions from the field units to the base station;
 - 10 assigning time slots in the first and second channel for message transmissions between the base station and field units; and
 - maintaining synchronization between a field unit and the base station by analyzing a message received in a time slot and adjusting timing of a field unit by transmitting a feedback message to a corresponding field unit.
 - 15
2. A method as in claim 1 further comprising the step of:
 - 20 partitioning the first channel into active and standby time slots, wherein active time slots correspond with field units transmitting a data payload on a reverse link traffic channel.
3. A method as in claim 2 further comprising the steps of:
 - 25 detecting a request by a field unit to transmit a data payload from the field unit to the base station;

assigning the requesting field unit an active slot in the first channel; and

allocating traffic channels to support a data transfer between the requesting field unit and the base station.

4. A method as in claim 3 further comprising the step of:
reassigning a field unit a standby time slot in the first channel after completion of the data transfer.
- 10 5. A method as in claim 3 further comprising the step of:
maintaining synchronization between a field unit and the base station by analyzing at least one message received on a traffic channel and adjusting timing of the field unit based upon a feedback message to the
15 field unit to advance or retard timing.
6. A method as in claim 5 wherein the base station analyzes timing of a marker in the traffic channel to maintain synchronization.
7. A method as in claim 6 wherein the marker in a traffic
20 channel is a string of pilot symbols.
8. A method as in claim 1 further comprising the step of:
dividing the first and second channels into a predetermined number of time slots to support periodic communications between the base station and each of
25 multiple field units.

9. A method as in claim 1 further comprising the steps of:

detecting a request by a field unit to establish a link with the base station;

- 5 analyzing the request to determine an initial timing adjustment to be made at the field unit for synchronization; and

transmitting timing adjustment information to the field unit for synchronizing the field unit with the base station.

10. A method as in claim 9, wherein the timing adjustment information is transmitted to a field unit over a paging channel.

11. A method as in claim 9, wherein the timing adjustment information is a multi-bit value transmitted to a field unit notifying the requesting field unit of an amount to advance or retard timing.

12. A method as in claim 1, wherein field units are notified of time slot assignments based upon messages over a forward link paging channel.

13. A method as in claim 1, wherein the base station analyzes a field unit message and determines whether to advance or retard timing of the field unit.

14. A method as in claim 1, wherein time slots are assigned in the first and second channel based on a predetermined offset.

15. A method as in claim 1, wherein a single bit in a time slot indicates whether a corresponding field unit should advance or retard timing.
- 5 16. A method as in claim 1, wherein message transmissions on the first channel are encoded using BCH.
- 10 17. A method as in claim 1 further comprising the step of:
assigning short PN codes for use by a field unit, a short PN code being transmitted by the field unit in an assigned time slot to provide an indication to the base station.
18. A method as in claim 17, wherein an assigned short PN code indicates a request by the field unit to transmit a data payload to the base station.
- 15 19. A method as in claim 17, wherein an assigned short PN code indicates a request by the field unit to remain in a standby mode.
- 20 20. A method for synchronizing wireless communications between a base station and a field unit, the method comprising the steps of:
assigning time slots of a forward link channel to each of a plurality of field units in which a base station transmits messages, each field unit determining messages directed to the field unit based upon receipt of a message in a particular time slot;
25 assigning time slots in a reverse link channel in which the field units transmit messages to the base station, the base station identifying from which field

unit transmitted a message based upon reception in a particular time slot;

adjusting message transmissions from each field unit such that messages transmitted from the plurality of field units arrive at the base station in a corresponding time slot of the reverse link channel.

21. A method as in claim 20 further comprising the step of:

analyzing messages received by field units and transmitting a message on the forward link to a corresponding field unit to adjust timing on the reverse link channel.

22. A method as in claim 21, wherein the message to adjust timing in the reverse link channel for a particular field unit includes an indication whether to advance or retard timing.

23. A method as in claim 22, wherein the indication of whether to advance or retard timing is based on a single bit from the base station indicating to advance or retard timing a first predefined amount.

24. A method as in claim 23, wherein timing is advanced or retarded based on a second predefined time if the single bit is a same state for a specified number of time periods in a row, the second predefined time greater than the first predefined time.

25. A method for supporting wireless communications between a base station and a plurality of field units, the method comprising the steps of:
- 5 allocating a first channel to support message transmissions from the base station to the field units;
- allocating a second channel to support message transmissions from the field units to the base station;
- 10 assigning a set of codes for use by a field unit, each code corresponding to a predefined function or request, a code being transmitted by the field unit on the second channel to provide an indication to the base station.
- 15 26. A method as in claim 25, wherein the set of codes is unique to each field unit.
27. A method as in claim 26, wherein the set of codes is a set of short PN codes.
28. A method as in claim 25 further comprising the step
- 20 of:
- assigning time slots in the first and second channel for message transmissions between the base station and each field unit.
29. A method as in claim 28, wherein a code of the set of
- 25 codes indicates a request by the field unit to be allocated reverse traffic channels for transmitting a data payload to the base station.